MONITORING A SAMPLE CONTAINING A NEUTRON SOURCE

ABSTRACT OF THE DISCLOSURE

The invention considers the frequency distributions of singles, doubles and triple neutron emission events from a sample under assay. The count rates are equated to mathematical functions related to the spontaneous fission rate, self-induced fission rate, detection efficiency and α,n rate with probability distribution assigned to each of those factors, the value of the product of all the probability distributions being increased to give an optimised solution and so provide a value of the spontaneous fission rate which is linked to the mass of the neutron source. The technique aims to provide increased accuracy and certainty compared with neutron coincidence counting based techniques.